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THE PLANT DISEASE BULLETIN

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THE PLANT DISEASE SURVEY

SUPPLEMENT 12

Crop Losses from Plant Diseases in the United States in 1919.

July 1, 1920

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

PLANT DISEASE SURVEY

1919

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List of Collaborators of the Plant Disease Survey who have made the principal contribution to the 1919 annual summary.

It should be understood that many other collaborators and pathologists have assisted in gathering data within the states but the following list includes those who actually furnished state reports to the Washington office.

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Maryland.....	Prof. C. E. Temple
Massachusetts.	Prof. A. V. Osmun
	Mr. W. S. Krout
Michigan.....	Dr. E. A. Bessey
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Minnesota.....	Dr. E. C. Stakman
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South Dakota....	Prof. Manley Champlin
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	Prof. E. H. Gilbert
Virginia.....	Dr. F. D. Fromme
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	Mr. B. F. Dana
	Mr. A. M. Frank
West Virginia...	Dr. M. J. Giddings
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	Dr. J. L. Sheldon
Wisconsin.....	Dr. R. E. Vaughan
	Prof. W. H. Wright

THE PLANT DISEASE BULLETIN

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THE PLANT DISEASE SURVEY

Supplement 12 July 1, 1920.

CROP LOSSES FROM PLANT DISEASES IN THE UNITED STATES IN 1919

Prepared by the Office of Plant Disease Survey.

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

Washington, D. C.

CROP LOSSES FROM PLANT DISEASES IN THE UNITED STATES IN 1919.

Supplement 12 1920

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SOURCES OF INFORMATION

The data upon which the subsequent summaries are based was obtained from the following sources:

1. Collaborators of the Plant Disease Survey, as listed on the opposite page.

2. Records of the 1919 cereal disease survey, conducted by the Office of Cereal Investigations, U. S. Department of Agriculture.

3. Crop disease specialists in the Bureau of Plant Industry.

4. Reports and records of the Plant Disease Survey.

Collaborators prepared their estimates in most cases with the assistance of other pathologists associated with them and sent them to the Washington office. The estimates were then compared with the results of the cereal disease survey and with all other available data and in each case what was considered to be a conservative figure was recorded. These preliminary percentage estimates were then resubmitted to collaborators and certain other pathologists for suggestions and revisions before issuing the final figures.

METHODS

In computing these losses the depredations of insects or the failure of crops because of weather factors has not been taken into account. Disease alone is considered, and the basis for computation has been the production that would have been possible if it were not for disease. In other words, the actual production is taken to represent 100% minus the sum of the percentages of loss from all diseases of the crop in question. The possible production is obtained by dividing the actual production by 100% minus the total percentage of loss from all diseases of the crop.

Thus:

$$\text{Possible production} = \frac{\text{Actual production}}{100\% - \%\text{ loss from all diseases of crop}}$$

The estimated loss from a given disease, then, is obtained by multiplying the estimated possible crop production by the estimated percentage loss from the disease, thus:

$$\text{Estimated crop loss} = \frac{\text{Actual production}}{100\% - \%\text{ loss from all diseases}} \times \%\text{ individual disease loss}$$

Stated algebraically it would be as follows:

x = Crop loss, in units, from a given disease.
y = Estimated possible production if it were not for diseases.
a = Acutal crop production for the year.
b = Sum of estimated percentages of loss for all diseases of the crop.
c = Estimated percentage loss from given disease.

$$y = \frac{a}{100 - b}$$

$$x = yc$$

$$\therefore x = \frac{ac}{100 - b}$$

SYMBOLS

Certain symbols have been used frequently in the accompanying tables.

\- = No data.
t = Trace. It indicates that the loss is less than 1% but data are not available for estimates beyond that. In some instances, such as the cereal smuts, where many detailed counts are available and where state estimates have been made to a fraction of a percent, .t usually signifies a small fraction of 1% (less than .1% in many cases.)
\+ = Loss occurred but amount not estimable. This is used (a) where a trace is given as the percentage loss; (b) when no production figures are given but when the percentages show some loss; (c) to indicate an excess. It is used in connection with most of the totals to signify that the actual loss is probably greater than that shown; and (d) in the case of leaf rusts of cereals where percentages of affected leaf area are available but where intelligent estimates of reduction in yield are impossible at this time.
*- = Occurrence but no data as to loss.
*0 = Occurrence but no loss.

Estimated reduction in yield of wheat due to scab (Fusarium sp.), leaf rust (Puccinia triticina), stem rust (Puccinia graminis), bunt (Tilletia laevis and T. tritici), loose smut (Ustilago tritici), and other diseases, 1919.

State	Production 1919 Bushels (000 omitted)	Estimated reduction in yield due to diseases. Scab %	Scab Bushels (000 omitted)	Leaf rust %	Leaf rust Bushels (000 omitted)	Stem rust %	Stem rust Bushels (000 omitted)	Bunt %	Bunt Bushels (000 omitted)	Loose smut %	Loose smut Bushels (000 omitted)	Other diseases %	Other diseases Bushels (000 omitted)	All diseases. %	All diseases. Bushels (000 omitted)
Me.	228	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N. H.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vt.	252	-	-	.5	1	2.	5	-	-	2.	5	-	-	4.5	11
Mass.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
R. I.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conn.	-	t	+	.5	+	t	+	t	+	1.	+	.5	+	2. +	+
N. Y.	11,178	t	+	1.	113	t	+	t	+	.5	57	-	-	1.5+	170+
N. J.	1,962	4.	85	1.	21	t	+	.5	11	1.	21	1.	21	7.5+	159+
Pa.	29,055	3.	958	1.	319	t	+	t	+	2.	638	3.	953	9. +	2,873+
Del.	1,740	4.	77	2.	38	-	-	2.	38	1.5	29	-	-	9.5+	182+
Md.	10,605	5.	603	2.	241	t	+	1.	120	3.5	422	-	-	11.5+	1,336+
Va.	12,508	3.	439	3.	439	t	+	2.	292	4.	585	2.5	366	14.5+	2,121+
W. Va.	5,400	15.	1,328	3.	265	12.	1,062	2.	177	5.	443	2.	177	29.	3,452
N. C.	7,225	5.	435	5.	435	-	-	2.	174	5.	435	-	-	17.	1,479
S. C.	1,836	2.	42	5.	105	1.	21	t	+	5.	106	-	-	13. +	274+
Ga.	2,520	1.	31	8.	252	6.	189	2.	63	3.	95	-	-	20.	630
Fla.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ohio	54,440	10.	7,407	1.	741	1.	741	2.5	1,851	2.	1,481	10.	7,407	26.5	19,628
Ind.	46,020	12.	6,574	1.	548	1.	548	t	+	2.	1,096	-	-	16. +	8,766+
Ill.	65,675	18.	15,156	1.	842	1.	842	t	+	2.	1,684	-	-	22. +	18,524+
Mich.	20,237	-	-	1.	231	8.	1,850	3.	694	.5	116	-	-	12.5+	2,891+
Wis.	7,355	9.	895	1.	99	15.	1,491	t	+	t	+	1.	99	26. +	2,584+
Minn.	37,710	5.	2,618	1.	524	20.	10,475	.5	262	.5	262	1.	524	28.	14,665
Iowa	23,675	22.	7,774	1.5	530	8.	2,827	1.	353	.5	177	-	-	33. +	11,661+
Mo	57,886	6.	4,039	2.	1,346	4.	2,692	1.	673	1.	673	-	-	14. +	9,423+

State	Production 1919 Bushels (000 omitted)	Estimated reduction in yield due to disease: Scab %	Scab Bushels (000 omitted)	Leaf rust %	Leaf rust Bushels (000 omitted)	Stem rust %	Stem rust Bushels (000 omitted)	Bunt %	Bunt Bushels (000 omitted)	Loose smut %	Loose smut Bushels (000 omitted)	Other diseases %	Other diseases Bushels (000 omitted)	All diseases. %	All diseases. Bushels (000 omitted)
N. D.	53,613	6.	4,595	1.	766	20.	15,318	t	+	1.	766	2.	1,532	30. +	22,977+
S. D.	30,175	10.	4,050	.5	203	10.	4,050	1.	405	1.	405	3.	1,215	25.5	10,328
Nebr.	60,675	1.	722	1.5	1,084	10.	7,223	2.	1,445	1.	722	.5	361	16.	11,557
Kans.	151,001	t	+	1.5	2,681	10.	17,870	.5	893	3.	5,361	.5	893	15.5+	27,698+
Ky.	12,029	8.	1,132	2.	283	t	+	t	+	1.	142	4.	566	15. +	2,123+
Tenn.	7,290	8.	720	4.	360	1.	90	1.	90	1.	90	4.	360	19.	1,710
Ala.	1,242	t	+	5.	66	t	+	1.	13	.5	7	t	+	6.5+	86+
Miss.	504	-	-	5.	27	t	+	1.	6	2.	11	-	-	8. +	44+
La.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Texas	31,350	t	+	4.	1,370	3.	1,028	t	+	1.5	514	-	-	8.5+	2,912+
Okla.	52,640	t	+	4.	2,393	4.	2,393	t	+	2.	1,196	2.	1,196	12. +	7,178+
Ark.	3,230	t	+	8.	292	t.	+	1.5	55	2.	73	-	-	11.5+	420+
Mont.	10,729	0	0	*0	0	*0	0	1.	108	t	+	-	-	1. +	108+
Wyo.	4,008	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colo.	17,645	*0	0	.1	18	1.	181	1.	131	.3	54	t.	+	2.4+	434+
N.Mex.	6,100	0	0	-	-	t	+	2.	124	t	+	-	-	2. +	124+
Ariz.	1,204	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utah	3,682	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nev.	668	0	0	t	+	t	+	1.	7	*-	-	-	-	1. +	7+
Ida.	18,705	0	0	0	0	t	+	3.	591	1.	197	1.	197	5. +	985+
Wash.	40,100	0	0	0	0	t	+	2.	822	t	+	.5	206	2.5+	1,028+
Ore.	20,495	-	-	*0	0	*-	-	2.	423	t	+	1.	211	3. +	634+
Calif.	16,335	t	+	t	+	3.	521	2.	348	t	+	1.	174	6. +	1,043+
U. S.	940,987	5.2	7:59,680	1.4	7:16,633	6.3	:71,417	.9	:10,219	1.5	7:17,863	1.4	5:16,463	16.9	6:192,275

RYE

Estimated reduction in yield of rye due to leaf rust (*Puccinia dispersa*), stem rust (*Puccinia graminis*), scab (*Fusarium* sp.), and other diseases, 1919.

State	Production 1919	Estimated reduction in yield due to disease													
		Leaf rust		Stem rust		Scab		Other diseases		All diseases	
	Bushels 000 omitted	%	Bushels 000 omitted	%	Bushels 000 omitted	%	Bushels 000 omitted	%	Bushels 000 omitted	%	Bushels 000 omitted
Me.	-	-	-	t	+	2	-	-	-	2+	+
N. H.	-	-	-	t	+	-	-	-	-	+	+
Vt.	17	-	-	t	+	2	+	-	-	2+	+
Mass.	115	-	-	t	+	-	-	-	-	+	+
R. I.	-	-	-	t	+	-	-	-	-	+	+
Conn.	220	t	+	t	+	-	-	-	-	+	+
N. Y.	1,932	t	+	t	+	1	20	-	-	1+	20+
N. J.	1,296	-	-	*0	0	-	-	-	-	-	-
Pa.	3,648	1	37	-	-	-	-	t	+	1+	37+
Del.	26	2	1	-	-	-	-	-	-	2	1
Md.	420	-	-	t	+	-	-	-	-	+	+
Va.	828	1	9	t	+	t	+	3	26	4+	35+
W. Va.	260	-	-	0	0	-	-	-	-	+	+
N. C.	810	-	-	-	-	-	-	-	-	-	-
S. C.	170	2	3	-	-	-	-	-	-	2	3
Ga.	294	5	15	*0	0	-	-	-	-	5	15
Fla.	-	-	-	-	-	-	-	-	-	-	-
Ohio	1,886	1	19	-	-	-	-	1	19	2	38
Ind.	5,320	1	54	t	+	-	-	-	-	1+	54+
Ill.	4,125	-	-	-	-	t	+	t	+	+	+
Mich.	13,500	1	138	-	-	t	+	1	138	2+	276+
Wis.	8,295	1	86	0	0	0	0	2	171	3	257
Minn.	7,830	t	+	-	-	-	-	1	79	1+	79+
Iowa	1,113	1	11	0	0	-	-	-	-	1	11
Mo.	720	t	+	-	-	-	-	t	+	+	+

State	Production 1919 Bushels 000 omitted	Estimated reduction in yield due to disease											
		Leaf rust		Stem rust		Scab		Other diseases		All diseases			
		%	Bushels 000 omitted	%	Bushels 000 omitted	%	Bushels 000 omitted	%	Bushels 000 omitted	%	Bushels 000 omitted		
N. D.	15,560	1	160	-	-	-	-	2	321	3	481		
S. D.	6,500	t	+	-	-	-	-	3	201	3+	201+		
Nebr.	6,650	-	-	-	-	-	-	t	+	+	+		
Kans.	2,520	t	+	-	-	-	-	t	+	+	+		
Ky.	744	t	+	0	0	-	-	1	8	1+	8+		
Tenn.	279	1	3	*-	-	t	+	-	-	1+	3+		
Ala.	38	1	1	t	+	-	-	2	+	3+	1+		
Miss.	-	-	-	t	+	-	-	-	-	+	+		
La.	-	-	-	10	*	t	+	-	-	10+	+		
Texas	119	1	1	t	+	-	-	-	-	1+	1+		
Okla.	350	*0	0	t	+	3	11	-	-	3+	11+		
Ark.	28	1	+	*0	0	-	-	2	1	3	1		
Mont.	-	-	-	-	-	-	-	-	-	-	-		
Wyo.	252	*0	0	1	3	-	-	-	-	1	3		
Colo.	1,258	t	+	2	26	-	-	t	+	2+	26+		
N.Mex.	-	-	-	-	-	-	-	-	-	-	-		
Ariz.	-	-	-	t	+	t	+	-	-	+	+		
Utah	126	-	-	t	+	2	3	-	-	2+	3+		
Nev.	-	-	-	*0	0	2	-	-	-	2	-		
Ida.	135	-	-	t	+	-	-	-	-	+	+		
Wash.	240	-	-	1	2	2	5	-	-	3	7		
Ore.	582	*-	-	*0	0	0	0	-	-	t	+		
Calif.	-	t	+	t	+	3	-	5	+	8+	+		
U. S.	88,478	.6	538	.03	31	.04	39	1.07	964	1.74	1,572		

BARLEY

Estimated reduction in yield of barley due to stripe (Helminthosporium gramineum), loose smut (Ustilago nuda), covered smut (Ustilago hordei), and leaf rust (Puccinia simplex), 1919.

State	Production 1919 (Bus. (000 omitted))	Estimated reduction in yield due to disease.									
		Stripe		Loose smut			Covered smut			Leaf rust	
		%	Bus.(000 omitted)	%	Bus.(000 omitted)		%	Bus.(000 omitted)		%	Bus.(000 omitted)
Me.	168	-	-	-	-		-	-		-	-
N. H.	25	-	-	-	-		-	-		-	-
Vt.	420	1	4	3	14		2	9		*0	0
Conn.	-	0	0	1	+		1.5	+		-	-
N. Y.	2,486	-	-	1	25		1	25		-	-
Pa.	392	t	+	1	4		1	4		t	+
Md.	198	-	-	-	-		-	-		-	-
Va.	375	t	+	2	8		t	+		*-	-
W. Va.	-	-	-	-	-		-	-		-	-
N. C.	-	-	-	-	-		-	-		-	-
S. C.	-	3	+	2	+		-	-		-	-
Ohio	3,350	2	72	3	108		2	72		*0	0
Ind.	1,430	1	15	1.5	22		.5	7		*0	0
Ill.	5,724	1	56	-	-		-	-		-	-
Mich.	5,320	2	114	-	-		-	-		-	-
Wis.	13,568	1	147	1	147		1	148		*0	0
Minn.	18,200	2	400	1	200		1	200		*0	0
Iowa	8,032	5	464	1	93		.5	46		*0	0
Mo.	330	t	+	1.5	5		1	3		*0	0
N. D.	14,950	1	159	t	+		t	+		*0	0
S. D.	19,250	1	214	1	214		1	214		*0	0
Nebr.	5,577	t	+	1	59		1	59		*-	-
Kans.	16,200	*0	0	2	341		3	512		-	-
Ky.	100	-	-	4	4		1	1		*0	0
Tenn.	176	t	+	5	10		5	10		t	+
Ala.	-	-	-	t	+		1	+		-	-
Texas	875	t	+	3	28		5	48		*0	0
Okla.	1,500	t	+	1	16		3	47		-	-
Ark.	-	-	-	2	+		-	-		-	-
Mont.	540	*0	0	1	5		.5	3		-	-
Wyo.	525	-	-	-	-		-	-		-	-
Colo.	3,900	5	216	1	43		2	87		*0	0
N. Mex.	680	2	14	t	+		-	-		*0	0
Ariz.	1,102	-	-	.5	6		1	11		-	-
Utah	720	-	-	-	-		-	-		-	-
Nev.	420	-	-	-	-		1	4		-	-
Ida.	3,360	t	+	.5	17		1	34		*0	0
Wash.	4,140	.5	21	*0	0		.5	21		-	-
Ore.	1,886	*-	-	*0	0		*-	-		*0	0
Calif.	30,000	t	+	t	+		1	303		t	+
U. S.	165,719	1.07	1,898+	.77	1,369+		1.06	1,868+		+	+

BARLEY (Cont.)

Estimated reduction in yield of barley due to stem rust (Puccinia graminis, scab (Fusarium sp.), and other diseases, 1919.

State	Production 1919	Estimated reduction yield due to disease									
		Stem rust		Scab		Other diseases		All diseases			
	Bus. (000 omitted)	%	Bus. (000 omitted)	%	Bus. (000 omitted)	%	Bus. (000 omitted)	%	Bus. (000 omitted)	%	Bus. (000 omitted)
Me.	168	-	-	-	-	t	+		+		+
N. H.	25	-	-	-	-	t	+		+		+
Vt.	420	t	+	-	-	t	+	6.	+		27+
Conn.	-	-	-	-	-	t	+	2.5+	+		+
N. Y.	2,486	t	+	-	-	t	+	2.	+		50+
Pa.	392	-	-	t	+	t	+	2.	+		8+
Md.	198	-	-	-	-	t	+		+		+
Va.	375	-	-	t	+	t	+	2.	+		8+
W. Va.	-	-	-	-	-	t	+		+		+
N. C.	-	-	-	-	-	t	+		+		+
S. C.	-	t	+	-	-	t	+	5.	+		+
Ohio	3,350	t	+	t	+	t	+	7.	+		252+
Ind.	1,430	t	+	t	+	1	15	4.	+		59+
Ill.	5,724	t	+	t	+	-	-	1.	+		58+
Mich.	5,320	5	286	-	-	t	+	7.	+		400+
Wis.	13,568	5	737	t	+	t	+	8.	+		1,179+
Minn.	18,200	5	1,000	t	+	t	+	9.	+		1,800+
Iowa	8,032	4	371	3	279	t	+	13.5+	+		1,253+
Mo.	330	t	+	1	3	t	+	3.5+	+		11+
N. D.	14,950	5	795	t	+	t	+	6.	+		954+
S. D.	19,250	4	855	3	642	t	+	10.	+		2,139+
Nebr.	5,577	4	237	-	-	t	+	6.	+		355+
Kans.	16,200	t	+	-	-	t	+	5.	+		853+
Ky.	100	t	+	1	1	t	+	6.	+		6+
Tenn.	176	0	0	1	2	t	+	11.	+		22+
Ala.	-	t	+	-	-	t	+	1.	+		+
Texas	875	t	+	-	-	t	+	8.	+		76+
Okla.	1,500	.0	0	-	-	t	+	4.	+		63+
Ark.	-	-	-	-	-	t	+	2.	+		+
Mont.	540	0	0	-	-	t	+	1.5+	+		8+
Wyo.	525	-	-	-	-	t	+		+		+
Colo.	3,900	2	87	-	-	t	+	10.	+		433+
N.Mex.	680	t	+	-	-	t	+	2.	+		14+
Ariz.	1,102	t	+	-	-	t	+	1.5+	+		17+
Utah	720	-	-	-	-	t	+		+		+
Nev.	420	-	-	-	-	t	+	1.	+		4+
Ida.	3,360	t	+	-	-	t	+	1.5+	+		51+
Wash.	4,140	t	+	-	-	t	+	1.	+		42+
Ore.	1,886	-	-	-	-	t	+		+		+
Calif.	30,000	t	+	-	-	t	+	1.	+		303+
U. S.	165,719	2.47	4,368+	.52	927+	.01	15+	5.9			10,445+

OATS

Estimated reduction in yield of oats due to loose and covered smuts (*Ustilago avenae* and *U. levis*), stem rust (*Puccinia graminis*), crown rust (*Puccinia coronata*), and other diseases, 1919.

State	Production 1919 Bushels 000 omitted	Estimated reduction in yield due to disease. Loose and covered smuts %	Loose and covered smuts Bushels 000 omitted	Stem rust %	Stem rust Bushels 000 omitted	Crown rust %	Crown rust Bushels 000 omitted	Other diseases %	Other diseases Bushels 000 omitted	All diseases %	All diseases Bushels 000 omitted
Me.	5,746	-	-	-	-	-	-	-	-	-	-
N. H.	1,221	-	-	-	-	-	-	-	-	-	-
Vt.	3,960	2.5	109	2	88	5	219	-	-	9.5	416
Mass.	570	1	6	t	+	t	+	t	+	1. +	6+
R. I.	68	-	-	-	-	-	-	-	-	-	-
Conn.	620	2	13	-	-	t	+	t	+	2. +	13+
N. Y.	29,580	2.5	758	t	+	t	+	-	-	2.5+	758+
N. J.	2,460	2	50	-	-	-	-	-	-	2.	50
Pa.	36,059	3	1,164	t	+	1	388	1	388	5. +	1,940+
Del.	115	3	4	-	-	t	+	1	1	1. +	5+
Md.	1,820	4	76	0	0	-	-	-	-	4.	76
Va.	5,280	4	220	*0	0	t	+	-	-	4. +	220+
W. Va.	4,750	5	258	1	52	2	103	-	-	8.	413
N. C.	3,767	5	209	-	-	5	209	-	-	10.	419
S. C.	11,730	7	933	1	133	4	533	-	-	12.	1,599
Ga.	10,800	7	840	1	120	2	240	-	-	10.	1,200
Fla.	1,140	1	12	-	-	-	-	-	-	1.	12
Ohio	51,858	4	2,305	*0	0	1	576	5	2,881	10.	5,762
Ind.	60,225	3	1,892	*0	0	1	631	.5	315	4.5	2,838
Ill.	123,060	5	6,616	0	0	1	1,323	1	1,323	7.	9,263
Mich.	36,875	2	776	-	-	3	1,164	-	-	5.	1,941
Wis.	78,123	1	822	1	822	2	1,645	1	822	5.	4,112
Minn.	90,160	2	1,918	2	1,918	1	959	1	959	6.	5,755
Iowa	196,182	1	2,033	1	2,033	1	2,033	.5	1,016	3.5	7,115
Mo.	38,259	4	1,594	t	+	t	+	t	+	4. +	1,594+

State	Production 1919 Bushels :000 omitted	Estimated reduction in yield due to disease: Loose and covered smuts %	Loose and covered smuts Bushels :000 omitted	Stem rust %	Stem rust Bushels :000 omitted	Crown rust %	Crown rust Bushels :000 omitted	Other diseases %	Other diseases Bushels :000 omitted	All diseases %	All diseases Bushels :000 omitted
N. D.	38,400	2	844	5	2,110	t	+	2	844	9. +	3,798+
S. D.	53,650	2	1,179	5	2,948	2	1,179	-	-	9.	5,306
Nebr.	69,962	2	1,489	3	2,233	1	744	-	-	6.	4,466
Kans.	44,229	4	1,843	t	+	t	+	-	-	4. +	1,843+
Ky.	9,900	2	202	*0	0	*0	0	-	-	2.	202
Tenn.	9,200	5	500	0	0	2	200	1	100	8.	800
Ala.	6,696	2.5	172	t	+	t	+	-	-	2.5+	172+
Miss.	5,282	4	224	t	+	2	112	-	-	6. +	337+
La.	1,650	1	17	0	0	2	34	-	-	3.	51
Texas	94,500	6	6,231	1	1,038	2	2,077	-	-	9.	9,346
Okla.	49,500	4	2,129	2	1,065	1	532	t	+	7. +	3,726+
Ark.	9,240	8	830	*0	0	2	208	1	104	11.	1,142
Mont.	6,120	1	62	0	0	*0	0	-	-	1.	62
Wyo.	5,670	-	-	-	-	-	-	-	-	-	-
Colo.	6,524	3	202	t	+	t	+	-	-	3. +	202+
N.Mex.	2,340	1	24	-	-	-	-	-	-	1.	24
Ariz.	533	-	-	-	-	-	-	-	-	-	-
Utah	2,448	-	-	-	-	-	-	-	-	-	-
Nev.	384	2	8	*0	0	-	-	-	-	2.	8
Ida.	7,700	3	243	t	+	*0	0	2	162	5. +	405+
Wash.	12,800	2	261	t	+	*0	0	t	+	2. +	261+
Ore.	11,104	1	112	*0	0	t	+	t	+	1. +	112+
Calif.	5,250	1	58	8	467	1	58	-	-	10.	583
U. S.	1,248,310	2.95	39,238	1.13	15,027	1.14	15,167	.67	8,915	5.9	78,353

CORN

Estimated reduction in yield of corn due to smut (Ustilago zeae), leaf rust (Puccinia sorghi), Physoderma (Physoderma zeae-maydis), root and ear rots (Fusarium sp.), and other diseases, 1919

State	Production 1919 Bushels (000 omitted)	Estimated reduction in yield due to disease. Smut %	Smut Bushels (000 omitted)	Leaf rust %	Leaf rust Bushels (000 omitted)	Physoderma %	Physoderma Bushels (000 omitted)	Root and Ear rots %	Root and Ear rots Bushels (000 omitted)	Other diseases %	Other diseases Bushels (000 omitted)	All diseases %	All diseases Bushels (000 omitted)
Me.	1,100	-	-	0	0	0	0	-	-	-	-	-	-
N. H.	1,050	*-	-	0	0	0	0	-	-	-	-	-	-
Vt.	2,120	.5	11	0	0	0	0	-	-	-	-	.5	11
Mass.	2,640	.5	13	t	+	0	0	t	+	t	+	.5+	13+
R. I.	495	.5	2	-	-	0	0	-	-	-	-	.5	2
Conn.	3,300	.5	16	t	+	0	0	.5	17	-	-	1. +:	33+
N. Y.	35,260	.5	178	-	-	0	0	.5	178	-	-	1.	356
N. J.	10,800	1.	111	-	-	0	0	2.	223	-	-	3.	334
Pa.	42,192	2.	940	t	+	0	0	8.	3,759	-	-	10. +:	4,699+
Dela.	6,900	1.	70	-	-	0	0	.5	35	-	-	1.5	105
Md.	28,413	1.5	446	-	-	0	0	3.	893	-	-	4.5	1,339
Va.	44,800	1.	477	t+	+	t	+	5.	2,383	t	+	6. +:	2,860+
W. Va.	24,350	2.	532	t	+	0	0	4.	1,063	-	-	6. +:	1,595+
N. C.	55,100	2.	1,191	-	-	.5	298	5.	2,978	-	-	7.5	4,467
S. C.	37,440	3.	1,195	-	-	1.	398	2.	797	-	-	6.	2,390
Ga.	69,890	3.	2,304	-	-	1.	768	5.	3,840	-	-	9.	6,912
Fla.	12,600	-	-	-	-	.5	63	*-	-	-	-	.5	63
Ohio	162,800	2.	3,618	-	-	0	0	8.	14,471	-	-	10.	18,089
Ind.	175,750	3.	5,731	*0	0	0	0	5.	9,552	-	-	8.	15,283
Ill.	301,000	2.	6,473	t	+	*0	0	5.	16,183	-	-	7. +:	22,656+
Mich.	64,350	2.	1,313	-	-	0	0	t	+	-	-	2. +:	1,313+
Wis.	85,540	1.	864	t	+	0	0	t	+	t	+	1. +:	864+
Minn.	118,000	1.	1,192	t	+	0	0	t	+	-	-	1. +:	1,192+
Iowa	416,000	3.	13,419	t	+	0	0	4.	17,892	-	-	7. +:	31,311+
Mo.	155,412	2.	3,272	t	+	t	+	3.	4,908	-	-	5. +:	8,180+

State	Production 1919 Bushels (000 omitted)	Estimated reduction in yield due to disease. Smut %	Smut Bushels (000 omitted)	Leaf rust %	Leaf rust Bushels (000 omitted)	Physoderma %	Physoderma Bushels (000 omitted)	Root and ear rots %	Root and ear rots Bushels (000 omitted)	Other diseases %	Other diseases Bushels (000 omitted)	All diseases %	All diseases Bushels (000 omitted)
N. D.	16,764	1.	171	-	-	-	-	1.	171	-	-	2.	342
S. D.	91,200	2.	1,900	0	0	-	-	2.	1,900	-	-	4.	3,800
Nebr.	184,186	3.	5,816	t	+	-	-	2.	3,878	-	-	5. +	9,694+
Kans.	69,362	5.	3,729	t	+	t	+	2.	1,492	-	-	7. +	5,221+
Ky.	82,500	2.	1,875	0	0	t	+	10.	9,375	-	-	12. +	11,250+
Tenn.	74,750	2.	1,709	t	+	.5	427	10.	8,543	t	+	12.5+	10,679+
Ala.	62,843	1.	676	t	+	1.	676	5.	3,378	-	-	7. +	4,730+
Miss.	59,700	1.	642	t	+	1.	642	5.	3,210	-	-	7. +	4,494+
La.	32,375	.5	182	5.	1,819	.5	181	5.	1,819	-	-	11.	4,001
Texas	202,800	3.	6,472	-	-	-	-	3.	6,472	-	-	6.	12,944
Okla.	74,400	3.	2,400	t	+	t	+	4.	3,200	-	-	7. +	5,600+
Ark.	48,726	t	+	t	+	t	+	5.	2,565	t	+	5. +	2,565+
Mont.	1,728	-	-	-	-	-	-	-	-	-	-	-	-
Wyo.	768	-	-	-	-	-	-	-	-	-	-	-	-
Colo.	11,206	5.	590	t	+	-	-	0	0	-	-	5. +	590+
N. Mex.	7,200	1.	73	t	+	-	-	-	-	-	-	1. +	73+
Ariz.	1,287	-	-	-	-	-	-	-	-	-	-	-	-
Utah.	432	-	-	-	-	-	-	-	-	-	-	-	-
Nev.	90	t	+	-	-	-	-	-	-	-	-	+	+
Ida.	840	-	-	-	-	-	-	-	-	-	-	-	-
Wash.	1,620	t	+	0	0	-	-	0	0	-	-	+	+
Ore.	1,860	t	+	0	0	0	0	t	+	-	-	+	+
Calif.	2,871	-	-	-	-	-	-	-	-	-	-	-	-
U. S.	2,917,450	2.23	69,603	.05	1,819+	.11	3,453+	4.02	125,175+		+	6.41	200,050+

POTATO

Estimated reduction in yield of potatoes due to late blight (*Phytophthora infestans*), Rhizoctonia (*Rhizoctonia solani*), black leg (*Bacillus atrosepticus*), Fusarium wilt (*Fusarium oxysporum*), and early blight (*Macrosporium solani*), 1919.

State	Production 1919 Bushels :000 omitted	Estimated reduction in yield due to disease									
		Late blight		Rhizoctonia		Black leg		Fusarium wilt		Early blight	
		%	Bushels :000 omitted	%	Bushels :000 omitted	%	Bushels :000 omitted	%	Bushels :000 omitted	%	Bushels :000 omitted
Maine	24,480	10.	3,060	-	-	t	+	0	0	0	0
New Hampshire	2,400	20.	706	t	+	t	+	0	0	t	+
Vermont	3,125	15.	808	-	-	t	+	0	0	t	+
Massachusetts	2,970	20.	784	.2	8	t	+	t	+	t	+
Rhode Island	425	25.	143	-	-	-	-	0	0	t	+
Connecticut	1,680	30.	782	t	+	t	+	0	0	t	+
New York	39,567	8.	3,746	1.	468	t	+	.5	234	-	-
New Jersey	10,560	5.	695	2.	277	-	-	-	-	6.	834
Pennsylvania	25,400	15.	6,804	3.	1,361	t	+	2.	907	5.	2,268
Delaware	913	5.	61	.5	6	1.	12	1.	12	15.	181
Maryland	5,170	10.	680	2.	136	1.	68	t	+	3.	204
Virginia	11,495	2.	239	1.	120	1.	120	t	+	-	-
West Virginia	5,130	15.	1,026	-	-	-	-	3.	205	2.	137
North Carolina	4,930	1.	53	1.	53	1.	53	1.	53	1.	53
South Carolina	2,295	t	+	2.	48	-	-	-	-	1.	24
Georgia	1,610	2.	34	.2	3	.1	2	0	0	1.	17
Florida	1,824	15.	360	-	-	-	-	0	0	5.	120
Ohio	9,300	t	+	t	+	t	+	6	653	8.	870
Indiana	4,400	-	-	1.	49	0	0	4.	196	t	+
Illinois	8,060	0	0	-	-	-	-	-	-	3.	271
Michigan	28,688	t	+	5.	2,049	t	+	-	-	t	+
Wisconsin	28,200	3.	929	2.	620	t	+	t	+	1.	310
Minnesota	26,100	0	0	1.5	458	1.	305	3.	916	t	+
Iowa	4,945	t	+	-	-	-	-	-	-	t	+
Missouri	8,250	t	+	t	+	-	-	2.	168	t	+

State	Production 1919 Bushels (00 omitted)	Estimated reduction in yield due to disease									
		Late blight		Rhizoctonia		Black leg		Fusarium wilt		Early blight	
		%	Bushels 000 omitted	%	Bushels 000 omitted	%	Bushels 000 omitted	%	Bushels 000 omitted	%	Bushels 000 omitted
North Dakota	5,670	0	0	1.5	90	t	+	1.5	90	t	+
South Dakota	4,500	.5	27	2.	107	.5	27	2.	107	5.	268
Nebraska	6,325	0	0	3.	228	4.	305	10.	762	t	+
Kansas	5,168	0	0	4.	295	10.	738	5.	369	10.	738
Kentucky	5,040	t	+	-	-	-	-	5.	371	15.	1,112
Tennessee	3,120	0	0	0	0	-	-	1.	38	15.	578
Alabama	3,520	0	0	t	+	0	0	t	+	-	-
Mississippi	1,530	0	0	-	-	0	0	t	+	5.	90
Louisiana	1,600	0	0	0	0	0	0	t	+	t	+
Texas	3,796	0	0	2.	83	0	0	1.	42	1.	42
Oklahoma	3,520	0	0	0	0	0	0	-	-	t	+
Arkansas	3,321	0	0	t	+	2.	90	3.	135	1.	45
Montana	2,820	0	0	-	-	2.	58	-	-	0	0
Wyoming	2,640	0	0	-	-	-	-	-	-	-	-
Colorado	11,040	0	0	1.	118	1.	118	2.	236	.5	59
New Mexico	495	0	0	-	-	-	-	-	-	t	+
Arizona	350	0	0	-	-	-	-	-	-	.25	1
Utah	2,397	0	0	-	-	-	-	-	-	-	-
Nevada	900	0	0	t	+	-	-	15.	180	-	-
Idaho	5,400	0	0	5.	351	3.	210	5.	351	t	+
Washington	7,250	.5	41	10.	319	t	+	t	+	0	0
Oregon	4,230	t	+	10.	498	2.	99	t	+	-	-
California	11,352	t	+	5.	668	-	-	8.	1,068	2.	267
United States	357,901	4.7	20,978	2.	8,913	.5	2,205	1.6	7,033	1.9	8,489

POTATO (Continued)

Estimated reduction in yield or potatoes due to mosaic, leaf roll, tip burn, and other diseases, 1919.

State	Production 1919 Bushels :000 omitted	Estimated reduction in yield due to disease.											
		Mosaic		Leaf roll		Tip burn		Other diseases		All diseases			
		%	Bushels :000 omitted	%	Bushels :000 omitted	%	Bushels :000 omitted	%	Bushels :000 omitted	%	Bushels :000 omitted	%	Bushels :000 omitted
Maine	24,480	8.	2,448	2.	612	-	-	-	-	20. +	6,120+		
New Hampshire	2,400	12.	423	-	-	-	-	-	-	32. +	1,129+		
Vermont	3,125	12.	647	5.	269	10.	539	-	-	42. +	2,263+		
Massachusetts	2,970	3.	117	1.	39	t	+	-	-	24.2+	948+		
Rhode Island	425	1.	6	t	+	-	-	-	-	26. +	149+		
Connecticut	1,680	t	+	t	+	.5	13	5.	130	35.5+	925+		
New York	39,567	4.	1,873	2.	937	-	-	-	-	15.5+	7,258+		
New Jersey	10,560	8.	1,112	3.	417	-	-	-	-	24.	3,335		
Pennsylvania	25,400	2.	907	10.	4,535	5.	2,268	2.	907	44. +	19,957+		
Delaware	913	-	-	-	-	2.	24	-	-	24.5+	296+		
Maryland	5,170	4.	272	2.	136	2.	136	-	-	24. +	1,632+		
Virginia	11,495	t	+	-	-	-	-	-	-	4. +	479+		
West Virginia	5,130	t	+	-	-	5.	342	-	-	25. +	1,710+		
North Carolina	4,930	t	+	-	-	-	-	2.	106	7. +	371+		
South Carolina	2,295	1.	24	-	-	1.	24	-	-	5. +	120+		
Georgia	1,610	3.	52	-	-	.1	2	.1	2	6.5	112		
Florida	1,824	4.	96	-	-	-	-	-	-	24.	576		
Ohio	9,300	-	-	-	-	.5	54	-	-	14.5+	1,577+		
Indiana	4,400	-	-	-	-	5.	244	-	-	10. +	489+		
Illinois	8,060	2.	181	3.	272	3.	272	-	-	11. +	996+		
Michigan	28,688	t	+	-	-	25.	10,246	-	-	30. +	12,295+		
Wisconsin	28,200	1.	310	t	+	2.	620	-	-	9. +	2,789+		
Minnesota	26,100	3.	916	t	+	2.	610	4.	1,221	14.5+	4,426+		
Iowa	4,945	t	+	-	-	-	-	-	-	+	+		
Missouri	8,250	-	-	-	-	-	-	-	-	2. +	168+		

State	Production	Estimated reduction in yield due to disease											
	Bushels	Mosaic		Leaf roll		Tip burn		Other diseases		All diseases			
	000 omitted	%	Bushels 000 omitted	%	Bushels 000 omitted	%	Bushels 000 omitted	%	Bushels 000 omitted	%	Bushels 000 omitted		
North Dakota	5,670	t	+	t	+	1.	60	2.	121	6.	+	361	+
South Dakota	4,500	t	+	t	+	1.	53	5.	268	16.	+	857	+
Nebraska	6,325	t	+	t	+	-	-	-	-	17.	+	1,295	+
Kansas	5,168	t	+	0	0	1.	74	-	-	30.	+	2,214	+
Kentucky	5,040	8.	593	2	148	2.	148	-	-	32.		2,372	
Tennessee	3,120	1.	38	t	+	2.	77	-	-	19.	+	731	+
Alabama	3,520	12.	494	-	-	1.	41	1.5	62	14.5	+	597	+
Mississippi	1,530	10.	180	-	-	-	-	-	-	15.	+	270	+
Louisiana	1,600	10.	181	t	+	t	+	1.5	27	11.5	+	208	+
Texas	3,796	.5	21	.5	21	1.	41	3.	125	9.	+	375	+
Oklahoma	3,520	t	+	t	+	-	-	-	-		+		+
Arkansas	3,321	10.	449	t	+	5.	224	5.	224	26.	+	1,167	+
Montana	2,820	t	+	-	-	-	-	-	-	2.	+	58	+
Wyoming	2,640	-	-	-	-	-	-	-	-	-		-	
Colorado	11,040	t	+	-	-	2.	236	-	-	6.5	+	767	+
New Mexico	495	-	-	-	-	-	-	-	-		+		+
Arizona	350	-	-	t	+	-	-	-	-	.25	+	1	+
Utah	2,397	-	-	-	-	-	-	-	-	-		-	
Nevada	900	-	-	-	-	-	-	10.	120	25.	+	300	+
Idaho	5,400	t	+	t	+	t	+	10.	701	23.	+	1,613	+
Washington	7,250	t	+	t	+	0	0	1.	82	11.5	+	942	+
Oregon	4,230	-	-	-	-	-	-	3.	149	15.	+	746	+
California	11,352	-	-	-	-	-	-	-	-	15.	+	2,003	+
United States	357,901	2.5	11,340	1.7	7,386	3.7	16,348	.9	4,245	19.5		86,997	

TOMATO

Estimated reduction in yield of tomatoes due to leaf spot (Septoria lycopersici), Fusarium wilt (Fusarium lycopersici), bacterial wilt (Bacillus solanacearum), early blight (Macrosporium solani), yellow blight (Fusarium spp.), and other diseases, 1919.

State	Production 1919 Tons	Estimated reduction in yield due to disease															
		Leaf spot		Fusarium wilt		Bacterial wilt		Early blight		Yellow blight		Other diseases		All diseases			
		%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons
Me.	-	-	-	0	0	0	0	-	-	-	-	-	-	-	-	-	-
N. H.	-	-	-	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Vt.	-	-	-	0	0	0	0	-	-	0	0	3.	+	3.	+		+
Mass.	-	t	+	t	+	t	+	5.	+	0	0	t	+	5.	+		+
R. I.	-	1.	+	t	+	0	0	-	-	0	0	-	-	1.	+		+
Conn.	-	1.	+	0	0	0	0	t	+	0	0	2.	+	3.	+		+
N. Y.	58,552	1.	623	t	+	0	0	t	+	0	0	5.	3,114	6.	+		3,737+
N. J.	35,944	10.	5,991	t	+	0	0	3.	1,797	0	0	27.	16,174	40.	+		23,962+
Pa.	8,201	3.	296	1.	99	t	+	3.	296	0	0	10.	988	17.	+		1,679+
Del.	11,607	10.	2,232	5.	1,116	t	+	1.	223	0	0	32.	7,143	48.	+		10,714+
Md.	80,899	45.	87,722	7.	13,645	t	+	.5	975	0	0	6.	11,696	58.5	+		114,038+
Va.	45,973	25.	16,097	1.	644	t	+	1.	644	0	0	3.	1,932	30.	+		19,317+
W. Va.	3,697	10.	536	3.	161	t	+	10.	536	0	0	8.	428	31.	+		1,661+
N. C.	-	10.	+	5.	+	5.	+	1.	+	0	0	2.	+	23.			+
S. C.	-	10.	+	3.	+	5.	+	1.	+	0	0	-	+	19.			+
Ga.	-	5.	+	40.	+	5.	+	2.	+	0	0	15.	+	67.			+
Fla.	56,792	t	+	5.	4,369	5.	4,368	25.	21,843	0	0	-	-	35.	+		30,580+
Ohio	37,988	10.	4,870	10.	4,870	t	+	2.	974	0	0	-	-	22.			10,714
Ind.	162,460	4.	7,469	3.	5,602	0	0	-	-	0	0	6.	11,204	13.			24,275
Ill.	14,329	4.	623	4.	623	0	0	-	-	0	0	-	-	8.			1,246
Mich.	8,642	t	+	0	0	0	0	0	0	0	0	-	-		+		+
Wis.	-	t	+	t	+	0	0	t	+	0	0	t	+		+		+
Minn.	-	t	+	t	+	0	0	0	0	0	0	2.	+	2.	+		+
Iowa	11,771	t	+	-	-	0	0	0	0	0	0	-	-		+		+
Mo.	22,139	2	487	5.	1,216	2.	487	t	+	0	0	-	-	9.	+		2,190+

	Production	Estimated reduction in yield due to disease															
	1919	Leaf spot		Fusarium wilt		Bacterial wilt		Early blight		Yellow blight		Other diseases		All diseases			
	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons
N. D.	-	t	+	0	0	0	0	0	0	0	0	-	-	+	+		
S. D.	-	t	+	0	0	0	0	0	0	0	0	-	-	+	+		
Nebr.	-	1.	+	-	-	t	+	0	0	0	0	-	-	1.	+		
Kans.	-	5.	+	8.	+	0	0	0	0	0	0	-	-	13.			
Ky.	9,744	15.	1,850	6.	740	t	+	-	-	0	0	-	-	21.	+	2,590	+
Tenn.	22,952	15.	4,918	10.	3,279	1.	328	2.	656	0	0	2.	656	30.		9,837	
Ala.	45	5.	4	25.	19	5.	4	5.	3	0	0	-	-	40.		30	
Miss.	18,400	4.	1,443	15.	5,412	5.	1,804	5.	1,804	0	0	20.	7,215	40.		17,678	
La.	-	t	+	25.	+	10.	+	12.	+	0	0	15.	+	62.	+		+
Texas	17,700	5.	983	1.	197	1.	197	1.	197	0	0	2.	393	10.		1,967	
Okla.	-	2.	+	3.	+	-	-	-	-	0	0	-	-	5.			+
Ark.	10,040	t	+	2.	224	1.5	168	2.	224	0	0	5.	561	10.5	+	1,177	+
Mont.	-	-	-	0	0	0	0	0	0	0	0	-	-	-		-	
Wyo.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	
Colo.	9,114	.5	46	-	-	-	-	t	+	-	-	-	-	.5	+	46	+
N.Mex.	-	0	0	-	-	-	-	-	-	-	-	-	-	-		-	
Ariz.	-	0	0	-	-	-	-	-	-	30.	+	-	-	30.		+	
Utah	35,916	0	0	-	-	-	-	-	-	-	-	-	-	-		-	
Nev.	-	0	0	-	-	0	0	-	-	10.	+	-	-	10.		+	
Ida.	-	0	0	-	-	0	0	-	-	50.	+	-	-	50.		+	
Wash.	-	0	0	-	-	0	0	0	0	10.	+	2.	+	12.	+	+	
Ore.	-	0	0	0	0	0	0	0	0	15.	+	*	-	15.		+	
Calif.	199,052	-	-	3.	6,861	-	-	-	-	-	-	10.	22,869	13.		29,730	
All other	6,785	-	-	-	-	-	-	-	-	-	-	-	-	-			
U. S.	887,842	11.4	136,190	4.1	49,077	.6	7,356	2.5	30,172	+	+	7.1	84,373	25.7		307,168	

SWEET POTATO

Estimated reduction in yield of sweet potatoes due to stem rot (*Fusarium hyperoxysporum* and *F. batatis*), foot rot (*Plenodomus destruens*), black rot (*Sphaeronema fimbriatum*), storage rots, pox (*Cystospora batata*), and other diseases, 1919.

State	Production: 1919 Bus. (000 omitted)	%	Estimated reduction in yield due to diseases. Stem rot Bus. (000 omitted)	%	Foot rot Bus. (000 omitted)	%	Black rot Bus. (000 omitted)	%	Storage rots Bus. (000 omitted)	%	Pox Bus. (000 omitted)	%	Other diseases Bus. (000 omitted)	%	All diseases Bus. (000 omitted)
N. J.	1,750	10.	263	-	-	15.	395	10.	264	1.	26	-	-	36.	948
Pa.	138	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Del.	966	15.	216	-	-	6.	87	10.	144	2.	29	-	-	33.	476
Md.	1,600	10.	224	3.	67	5.	112	5.	112	2.	45	-	-	25.	560
Va.	4,750	10.	688	5.	344	5.	344	10.	689	1.	69	-	-	31.	2,134
W. Va.	230	-	-	-	-	-	-	-	-	0	0	-	-	-	-
N. C.	9,858	1.	143	-	-	10.	1,429	20.	2,857	0	0	-	-	31.	4,429
S. C.	7,560	t	+	-	-	7.	1,103	40.	6,300	0	0	5.	787	52.	8,190+
Ga.	13,064	t	+	0	0	12	3,199	35.	9,332	0	0	4.	1,066	51.	13,597+
Fla.	4,100	1.	45	-	-	2.	89	-	-	0	0	5.	223	8.	357
Ohio	115	2.	2	2.	2	2.	3	-	-	0	0	-	-	6.	7
Ind.	315	-	-	-	-	t	+	-	-	0	0	-	-	+	+
Ill.	855	2.	18	-	-	2.	18	-	-	-	-	-	-	4.	36
Iowa	320	3.	10	3.	10	2.	7	-	-	0	0	-	-	8.	27
Mo.	832	+	+	t	+	1.	8	-	-	-	-	-	-	1.	8+
Kans.	436	10.	70	t	+	8.	56	20.	141	t	+	-	-	38.	267+
Ky.	1,680	-	-	-	-	-	-	15.	296	0	0	-	-	15.	296
Tenn.	4,400	.5	31	0	0	10.	607	15.	910	0	0	2.	121	27.5	1,669
Ala.	14,194	1.	237	t	+	1.	237	35.	8,280	0	0	3.	709	40.	9,463+
Miss.	10,290	*	-	-	-	5.	903	35.	6,318	0	0	3.	542	43.	7,763
La.	6,300	t	+	0	0	1.	89	25.	2,218	0	0	3.	266	29.	2,573+
Texas	10,450	t	+	0	0	2.	286	20.	2,863	1.	143	4.	573	27.	3,865+
Okla.	3,000	1.	37	*	-	2.	73	15.	549	-	-	-	-	18.	659
Ark.	4,600	3.	177	-	-	1.	59	15.	884	t	+	3.	177	22.	1,297
N. Mex.	450	-	-	-	-	5.	28	15.	84	0	0	-	-	20.	112
Ariz.	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calif.	1,096	5.	60	2.	24	2.	24	-	-	-	-	-	-	9.	108
U. S.	103,579	1.37+	2,221+	.28+	447+	5.64+	9,156+	26.	42,241	.19	312+	2.75	4,464	36.23+	58,841+

DRY BEANS

Estimated reduction in yield of dry beans due to anthracnose (Colletotrichum lindemuthianum), blight, mosaic, root rots, and other diseases, 1919.

State	Production 1919 Bushels (000 omitted)	Estimated reduction in yield due to disease													
		Anthracnose		Blight		Mosaic		Root rots		Other diseases		All diseases	
		%	Bushels (000 omitted)	%	Bushels (000 omitted)	%	Bushels (000 omitted)	%	Bushels (000 omitted)	%	Bushels (000 omitted)	%	Bushels (000 omitted)
N. Y.	1,450	2.	35	5.	87	5.	87	5.	87	-	-	17.	296
Mich.	4,030	t	+	3.	125	-	-	-	-	-	-	3.+	125+
Colo.	448	0	0	t	+	1.	5	2.	9	-	-	3.+	14+
N. Mex.	960	0	0	-	-	-	-	t	+	-	-	+:	+
Ariz.	136	t	+	-	-	0	0	-	-	-	-	+:	+
Calif.	4,464	-	-	-	-	-	-	-	-	-	-	-	-
U. S.	11,488	.3	35	1.8	212	.8	92	.8	96	-	-	3.7	435

SNAP BEAN

Estimated reduction in yield of snap beans due to anthracnose (Colletotrichum lindemuthianum), blight (Bacterium phaseoli), mosaic, root rots, and other diseases, 1919.

State	Production 1919 Tons	Estimated reduction in yield due to disease.													
		Anthracnose		Blight		Mosaic		Root rots		Other diseases		All diseases	
		%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons
Me.	378	8.	33	0	0	-	-	-	-	-	-	8	33
N. H.	-	3.	+	t	+	-	-	-	-	-	-	3. +	+
Vt.	-	4.	+	-	-	t	+	-	-	-	-	4 +	+
Mass.	-	.5	+	t	+	t	+	5.	+	t	+	5.5 +	+
Conn.	-	.4	+	.3	+	t	+	-	-	-	-	.7 +	+
N. Y.	7,038	2.	170	5.	424	5.	424	5.	424	-	-	17.	1,442
N. J.	-	-	-	1.	+	+	+	-	-	-	-	1. +	+
Pa.	798	5.	48	5.	48	2.	19	4.	38	1.	10	17.	163
Md.	3,160	-	-	-	-	-	-	-	-	-	-	-	-
Va.	265	3.	8	t	+	t	+	t	+	-	-	3. +	8+
W. Va.	-	5.	+	t	+	-	-	-	-	-	-	5. +	+
N. C.	-	2.	+	2.	+	-	-	-	-	-	-	4.	+
S. C.	-	1.	+	3.	+	t	+	-	-	-	-	4. +	+
Ga.	-	-	-	+	+	1.	+	2.	+	-	-	3. +	+
Fla.	-	1.	+	+	+	-	-	-	-	-	-	1. +	+
Ohio	412	7.	31	-	-	-	-	-	-	-	-	7.	31
Ind.	442	t	+	t	+	6.	28	-	-	-	-	6. +	28+
Mich.	904	t	+	3.	28	t	-	-	-	-	-	3. +	28+
Wis.	1,692	t	+	4.	71	t	+	t	+	t	+	4. +	71+
Minn.	510	2.	11	2.	10	t	+	t	+	t	+	4. +	21+
Mo.	-	t	+	-	-	-	-	-	-	-	-	+	+
S. D.	-	5.	+	1.	+	0	0	1.	+	1.	+	8.	+
Nebr.	-	t	+	-	-	-	-	t	+	-	-	+	+
Kans.	-	t	+	0	0	2.	+	1.	+	-	-	3. +	+
Ky.	-	2.	+	-	-	-	-	-	-	-	-	2.	+
Tenn.	206	5.	12	5.	12	5.	12	0	0	t	+	15. +	36+

State	Production 1919	Estimated reduction in yield due to disease.													
		Anthracnose		Blight		Mosaic		Root rots		Other diseases		All diseases			
	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons		
Ala.	-	-	-	-	-	t	+	+	+	-	-	+	+		
Miss.	-	7.	+	5.	+	+	+	-	-	-	-	12.	+		
La.	-	2.	+	8.	+	2.	+	3.	+	-	-	15.	+		
Texas	-	5.	+	3.	+	+	+	3.	+	-	-	11.	+		
Okla	-	0	0	1.	+	+	+	-	-	-	-	1.	+		
Ark.	282	2.	6	1.	3	t	+	t	+	-	-	3.	+	9	+
Colo.	2,083	0	0	t	+	1	21	2.	43	-	-	3.	+	64	+
N. Mex.	-	0	0	-	-	-	-	t	+	-	-		+	+	
Ariz.	-	.1	+	-	-	0	0	-	-	-	-	.1		+	
Utah	558	-	-	-	-	-	-	-	-	-	-	-		-	
Nev.	-	0	0	-	-	-	-	-	-	1.	+	1.		+	
Ida.	-	0	0	-	-	10.	+	t	+	1.	+	11.	+	+	
Wash.	312	0	0	0	0	0	0	1.	32	-	-	1.		32	
Ore.	1,874	*0	0	*	-	15.	+ 331	+ -	-	-	-	15.	+	331	+
Calif.	3,020	-	-	-	-	-	-	-	-	-	-	-		-	
All-others	1,124														
U. S.	25,058	1.17	319	2.18	596	3.05	835	1.96	537	.04	10	8.4		2,297	

COTTON

Estimated reduction in yield of cotton due to anthracnose (Colletotrichum gossypsii), angular leaf spot (Bacterium malvacearum), wilt (Fusarium vasinfectum), root knot (Heterodera radicicola), and other diseases, 1919.

State	Production: 1919 Bales	Estimated reduction in yield due to disease. Anthracnose %	Anthracnose Bales	Angular leaf spot %	Angular leaf spot Bales	Wilt %	Wilt Bales	Root knot %	Root knot Bales	Other diseases %	Other diseases Bales	All diseases %	All diseases Bales
Va.	22,000	2.	500	t		*-	-	t	+	10.	2,500	12. +	3,000+
N. C.	875,000	5.	51,450	1.	10,290	5.	51,450	1.	10,290	3.	31,870	15.	154,350
S. C.	1,475,000	3.	49,980	2.	33,320	2.	33,320	1.5	24,990	3.	49,980	11.5	191,590
Ga.	1,730,000	8.	175,120	2.	43,780	4.	87,560	4.	87,560	3.	65,670	21.	459,690
Fla.	17,000	*-	-	*-	-	*-	-	*-	-	-	-	-	-
Mo.	60,000	-	-	-	-	*-	-	-	-	-	-	-	-
Tenn.	298,000	8.	26,488	2.	6,622	t	+	0	0	t	+	10. +	33,110+
Ala.	715,000	4.	32,480	t	+	5.	40,600	2.	16,240	1.	8,120	12. +	97,440+
Miss.	946,000	5.	54,350	1.	10,870	4.	43,480	2.	21,740	1.	10,870	13.	141,310
La.	300,000	2.	6,660	1.	3,330	5.	16,650	1.	3,330	1.	3,330	10.	33,300
Texas	2,700,000	1.5	47,085	1.	31,390	1.	31,390	.5	15,695	10.	313,900	14.	439,460
Okla.	930,000	1.	10,210	1.5	15,315	1.	10,210	.5	5,105	5.	51,050	9.	91,890
Ark.	830,000	1.5	13,530	1.5	13,530	2.	18,040	t	+	3.	27,060	8. +	72,160+
Ariz.	75,000	-	-	10.	10,000	-	-	-	-	15.	15,000	25.	25,000
Calif.	102,000	-	-	-	-	-	-	-	-	-	-	-	-
Other States:	7,000	-	-	-	-	-	-	-	-	-	-	-	-
U. S.	11,082,000	3.65	468,853	1.39	178,447	2.59	332,700	1.44	184,950	4.52	579,350	13.59	1,742,300

PEACH

Estimated reduction in yield of peaches due to leaf curl (Exoascus deformans), brown rot (Sclerotinia cinerea), blossom blight, and other diseases, 1919.

State	Production	Estimated reduction in yield due to disease									
		Leaf curl		Brown rot & blossom blight		Other diseases		All diseases			
	Bushels 000 omitted	%	Bus. (000 omitted)	%	Bus. (000 omitted)	%	Bus. (000 omitted)	%	Bus. (000 omitted)		
N. H.	43	-	-	-	-	-	-	-	-		
Mass.	160	1.	2	15.	28	t	+	16.+	30+		
R. I.	-	1.	+	10.	+	1.	+	12.	+		
Conn.	200	1.	3	20.	51	1.	2	22.	56		
N. Y.	1,648	5.	111	20.	445	1.	22	26.	578		
N. J.	1,018	6.	102	30.	509	4.	68	40.	679		
Pa.	1,200	5.	86	20.	342	5.	86	30.	514		
Del.	277	8.	69	50.	433	10.	87	68.	589		
Md.	731	10.	105	18.	191	3.	32	31.	328		
Va.	928	3.	33	10.	109	2.	22	15.	164		
W. Va.	760	5.	44	5.	44	3.	26	13.	114		
N. C.	713	3.	25	10.	85	3.	25	16.	135		
S. C.	466	2.	12	20.	124	3.	19	25.	155		
Ga.	5,895	7.	589	20.	1,684	3.	253	30.	2,526		
Ohio	428	3.	15	8.	40	3.	15	14.	70		
Ind.	150	2.	2	t	+	2.	2	4.+	4+		
Ill.	790	t	+	1.	8	2.	16	3.+	24+		
Mich.	480	2.	10	t	+	-	-	2.+	10+		
Iowa	3	t	+	-	-	-	-	+	+		
Mo.	828	t	+	3.	26	t	+	3.+	26+		
Nebr.	-	t	+	t	+	-	-	+	+		
Kans.	80	t	+	1.	1	2.	2	3.+	3+		
Ky.	726	1.	8	4.	30	1.	8	6.	46		
Tenn.	978	1.	11	10.	112	2.	23	13.	146		
Ala.	1,678	t	+	8.	94	3.	36	11.+	130+		
Miss.	-	t	+	15.	+	3.	+	18.+	+		
La.	-	0	0	25.	+	-	-	25.	+		
Texas	2,760	t	+	t	+	6.	176	6.+	176+		
Okla.	1,007	t	+	1.	11	3.	31	4.+	42+		
Ark.	3,639	t	+	3.	119	5.	197	8.+	316+		
Colo.	840	0	0	0	0	1.	8+	1.+	8+		
N. Mex.	145	-	-	-	-	-	-	-	-		
Utah	1,500	-	-	-	-	-	-	-	-		
Ida.	350	1.	4	-	-	8.	31	9.	35		
Wash.	1,899	1.	19	t	+	1.	19	2.+	38+		
Ore.	514	5.	30	4.	24	5.+	30	14.+	84+		
Calif.	18,506	-	-	-	-	-	-	+	+		
U. S.	51,340	2.21	1,288	7.71	4,502	2.12	1,236	12.04	7,026		

Estimated reduction in yield of apples due to bitter rot (Glomerella cingulata), black rot (Physalospora cydoniae), blotch (Phyllosticta solitaria), and cedar rust (Gymnosporangium juniperi-virginianae), 1919.

State	Production	Estimated reduction in yield due to disease.							
		Bitter rot		Black rot		Blotch		Cedar rust	
	Bushels (000 omitted)	%	Bus. (000 omitted)	%	Bus. (000 omitted)	%	Bus. (000 omitted)	%	Bus. (000 omitted)
Me.	4,630	0	0	t	+	0	0	-	-
N. H.	1,510	0	0	t	+	0	0	-	-
Vt.	1,500	0	0	1.	16	0	0	-	-
Mass.	3,240	t	+	1.	33	0	0	t	+
R. I.	294	t	+	1.	3	0	0	t	+
Conn.	1,572	t	+	2.	33	0	0	t	+
N. Y.	16,800	t	+	1.	193	0	0	t	+
N. J.	2,313	1.5	37	3.	73	t	+	t	+
Pa.	7,972	1.	101	3.	302	1.	101	1.	101
Del.	750	-	-	3.	24	t	+	t	+
Md.	1,944	1.	21	3.	64	t	+	.5	11
Va.	9,950	5.	726	3.	436	1.	145	15.	2,179
W. Va.	3,478	1.	40	5.	200	t	+	3.	120
N. C.	1,108	5.	92	8.	148	5.	92	8.	148
S. C.	700	25.	336	8.	108	2.	27	2.	27
Ga.	636	10.	107	10.	107	3.	32	t	+
Ohio	2,806	1.	31	2.	62	1.	31	1.	31
Ind.	1,704	1.	18	1.	18	1.	18	t	+
Ill.	4,943	t	+	t	+	3.	171	.3	17
Mich.	6,484	0	0	t	+	0	0	t	+
Wis.	2,087	0	0	t	+	0	0	t	+
Minn.	1,365	-	-	t	+	0	0	1.	15
Iowa	1,615	-	-	-	-	-	-	1.	19
Mo.	5,773	2.	133	3.	199	2.	133	t	+
N. D.	-	-	-	-	-	0	0	0	0
S. D.	302	0	0	-	-	-	-	t	+
Nebr.	1,125	t	+	-	-	2.	27	2.	27
Kans.	1,835	t	+	t	+	3.	64	t	+
Ky.	1,480	1.5	24	3.	49	1.	16	2.	33
Tenn.	1,560	2.	44	5.	110	5.	110	2.	44
Ala.	617	7.	58	2.	17	8.	67	t	+
Miss.	-	1.	-	3.	-	5.	-	1	-
La.	-	t.	+	-	-	-	-	0	0
Texas	624	1.	7	1.	7	8.	57	0	0
Okla.	1,512	t	+	2.	34	8.	136	0	0
Ark.	4,250	5.	244	.5	24	2.	98	1.	49
Mont.	1,289	0	0	-	-	0	0	0	0
Colo.	3,418	0	0	t	+	0	0	0	0
N. Mex.	1,329	-	-	t	+	0	0	0	0
Ariz.	154	0	0	-	-	0	0	0	0
Utah	779	0	0	-	-	0	0	0	0
Ida.	4,350	0	0	-	-	0	0	0	0
Wash.	23,190	0	0	-	-	0	0	0	0
Ore.	5,579	0	0	-	-	0	0	0	0
Calif.	8,640	0	0	-	-	0	0	0	0
U. S.	147,457	1.21	2,019	1.36	2,260	.8	1,325	1.7	2,821

Estimated reduction in yield of apples due to fire blight (Bacillus amylovorus), scab (Venturia inaequalis), and other diseases, 1919.

State	Production 1919 Bushels 000 omitted	Estimated reduction in yield due to disease. Fire blight %	Fire blight Bus. (000 omitted)	Scab %	Scab Bus. (000 omitted)	Other diseases %	Other diseases Bus. (000 omitted)	All diseases %	All diseases Bus. (000 omitted)
Me.	4,680	-	-	+	+	-	-	+	+
N. H.	1,510	t	+	5.	79	-	-	5. +	79+
Vt.	1,500	t	+	5.	80	-	-	6. +	96+
Mass.	3,240	t	+	1.	33	-	-	2. +	66+
R. I.	294	t	+	2.	6	-	-	3. +	9+
Conn.	1,572	t	+	2.	33	-	-	4. +	66+
N. Y.	16,800	t	+	10.	1,931	2.	386	13. +	2,510+
N. J.	2,313	1.	24	-	-	-	-	5.5+	134+
Pa.	7,972	1.	101	10.	1,009	4.	404	21.	2,119
Del.	750	t	+	5.	41	-	-	8. +	65+
Md.	1,944	t	+	4.	85	-	-	8.5+	181+
Va.	9,950	.5	73	4.	581	3.	436	31.5	4,576
W. Va.	3,478	1.	40	3.	120	-	-	13. +	520+
N. C.	1,108	10.	185	4.	74	-	-	40.	739
S. C.	700	10.	135	1.	13	-	-	48.	646
Ga.	636	12.	128	1.5	16	4.	43	40.5+	433+
Ohio	2,806	.5	16	4.	124	-	-	9.5	295
Ind.	1,704	t	+	3.	55	1.	19	7. +	128+
Ill.	4,943	t	+	6.	342	4.	228	13.3+	758+
Mich.	6,484	t	+	8.	564	-	-	8. +	564+
Wis.	2,087	1.	23	8.	186	1.	23	10. +	232+
Minn.	1,365	1.	15	5.	74	1.	15	8. +	119+
Iowa	1,815	t	+	4.	76	-	-	5. +	95+
Mo.	5,773	1.	66	3.	199	2.	133	13. +	863+
N. D.	-	t	+	-	-	-	-	+	+
S. D.	302	-	-	8.	26	-	-	8. +	26+
Nebr.	1,125	t	+	8.	107	4.	53	16. +	214+
Kans.	1,835	1.	21	8.	171	2.	43	14. +	299+
Ky.	1,480	2.	33	-	-	-	-	9.5+	155+
Tenn.	1,560	5.	110	10.	219	t	t	29. +	637+
Ala.	617	5.	42	4.	33	-	-	26. +	217+
Miss.	-	5.	-	t	+	-	-	15. +	+
La.	-	-	-	t	+	-	-	+	+
Texas	624	2.	14	-	-	-	-	12.	85
Okla.	1,512	t	+	t	+	1.	17	11. +	187+
Ark.	4,250	1.	49	.5	24	3.	147	13.	635
Mont.	1,289	t	+	t	+	-	-	+	+
Colo.	3,418	-	-	t	+	-	-	+	+
N. Mex.	1,329	t	+	0	0	-	-	+	+
Ariz.	154	.5	1	0	0	-	-	.5+	1+
Utah	779	-	-	-	-	-	-	-	-
Idaho	4,350	1.	46	.2	9	5.	232	6.2	287
Wash.	23,190	t	+	.5	119	2.	476	2.5+	595+
Ore.	5,579	.5	29	2.	115	1+	58+	3.5+	202+
Calif.	8,640	-	-	-	-	1.	87	1.	87
U. S.	147,457	.69	1,151	3.93	6,544	1.68	2,800	11.37	18,920

MAY 1

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